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SCREECH OWL AND PREY

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THE SCIENTIFIC ASPECTS OF BIRD-BANDING

BY WILLIAM ROWAN

In accepting the Editor's invitation to contribute an article to the columns of the *Bulletin*, I feel that I am taking a grave risk in my choice of subject matter, which necessitates the adoption of a critical attitude. But when one considers that thousands of acres of paper and uncountable gallons of good printer's ink are wasted annually, in these days of endless publication, without seeming to accomplish anything in particular beyond, perhaps, getting authors' names into print, one is induced to attempt to put something that will at least stimulate thought into an article written by request. Since my interest in banding is mainly biological, it occurred to me that a certain number of banders might be interested to know what biologists—the people who are reputed to spend their time in laboratories with one eye down a microscope and the other on a musty old tome in technical "jargon"—think of their activities. I readily concede that I am not qualified to speak for biologists in general and that I am, rather, voicing a personal opinion, but it is nevertheless an opinion tarred with the brush of the microscope and the musty old tome. Still, neither my fellow biologists—nor an innocent editor—are to be blamed for my sentiments.

The link that brings banders and laboratory men into touch with each other is the ever fascinating problem of bird migration. It has intrigued the professional and the lay mind alike for many centuries. Its literature is full, not only of the names of innumerable amateurs who can lay no claim to scientific training but also of names famous throughout the world in the fields of philosophy and pure science. Neither camp has successfully solved the real riddles of migration. By this I mean that we have no idea yet either *why* birds migrate nor *how* they do so, and these are the crucial points about migration. We only know that they *do* migrate, that their migrations are regular, that they appear to bear constant relationship to the seasons and the poles, and that certain birds seem to take certain routes.

There must be an explanation for this state of affairs.

Largely, I fancy, it lies in the fact that the migration of birds is primarily a biological problem rather than an ornithological one. Not only is it an example of animal behavior but one of extreme complexity, and as such it can never be solved by the layman, no matter how good his intentions or how conversant he may be with the field facts. As long as he lacks the fundamental knowledge of the mechanism of living organisms—anatomy, physiology, genetics, etc.—he cannot even begin to speculate intelligently on the theoretical aspects of migration. But this argument, of course, can be applied in two directions, and it is just as true to say that no matter how able or well-informed in biological theory a scientist may be, unless he is familiar with the field aspects of migration the subject is to him a closed book also. To my mind it is this unfortunate separation of the two vital interests—a separation that is almost universal—that accounts for the migration of birds remaining the mystery that it does in spite of the attempts of hundreds of good brains to solve it. In this expression of opinion, at all events, I am not alone. In that excellent volume, "Problems of Bird-Migration," by Dr. A. Lansborough Thomson, (incidentally, let me recommend every serious bander to read it) the author suggests again and again that he is addressing two audiences, the layman and the scientist. For the former he constantly points out the biological implications that underlie the facts of migration. For the latter he spreads out a panorama of established fact. The author is not only an able scientist but also a well-informed ornithologist and an active bander.

It may sound ungracious of the biologist to refer to the average ornithologist as an amateur and a non-scientist but as a generalization it appears to me to be justified. The vast majority of ornithologists take up their study as a hobby. It may be confined to collecting eggs, to photographing, to banding, to watching, or even to "hair-splitting" in the museum. It may embrace several or all of these. None of them necessarily implies science or even the scientific outlook. Even the last, which is widely considered to be the pinnacle of "scientific ornithology," may be no more than the rankest of amateur effort. It requires no scientific knowledge whatever to ascertain that one skin differs from another in minute measurement or in detail of color, nor does it further science in any respect to celebrate the discovery by affixing a new name thereto.

Now the determination and recognition of geographical races is a matter of considerable importance to ornithology,

but such recognition should express definite relationships. To do so it should be based on recognized principles. If carried out with these at the back of it and with method instilled into it, it not only achieves something useful for ornithology but contributes to the far wider fields of biology which seek to determine the ultimate relationships of all living organisms. In such case the recognition and naming of differences becomes both an intelligent and a profitable procedure. But, as already stated, there is nothing inherently scientific in naming differences in skins. It depends on how the thing is done.

Again, although they themselves will rarely admit it, yet it is a fact well known to their friends, that a large percentage of bird-photographers who call themselves ornithologists can lay no honest claim to such title, for they are really photographers getting pictures of a particular kind, to wit, of birds. Their knowledge of ornithology may be nil: their knowledge of photography possibly profound. Yet they persist in styling themselves ornithologists and considering themselves scientists on the strength of it. Yet again, we read appeals here and there from banding "leaders" for more banders and more banders, anybody who is willing to band. No stipulation is made that they should first be ornithologists and secondly banders. As the invitation stands it simply means that the criticism of a well-known bander when he deplores the existence of "picnic banding" is only too true and very apt. Picnic banding will advance neither science nor ornithology. It merely vitiates the returns of bird-banding generally and casts a slur on the conscientious and valuable labors of innumerable qualified workers. Still again, the amassing of eggs and arranging them nicely and neatly in cabinets serves no better purpose than does the collecting of stamps or book-plates or china saucers, if that is all it amounts to, and that is, in fact, all it does amount to in a very large number of cases. On the other hand, such collecting, if done in another spirit and on a broader basis, many contribute richly to ornithology and ultimately to scientific ornithology. Apart from information to be derived from the specimens themselves, the egg-collector has unrivalled opportunities of studying the nesting-behavior of birds.

A chain is no stronger than its weakest link, and the first thought of a trained mechanic in need of a chain would be to look for such a link. Scientific argument, if it is to be worth anything at all, must be based on unassailable facts. Darwin's theory of natural selection, in spite of the critical probing

and analysing of three subsequent generations of scientists still remains the cornerstone of biological thought simply because its author assembled, for the exercise of his analytical genius, a chain of facts that was both comprehensive and fundamentally sound. The scientist to-day who sees migration in its true perspective and recognizes therein a series of wonderful adaptations and one of the most remarkable examples of animal behavior known among vertebrates sees also therein the possibility of unearthing hidden biological principles that may prove crucial and perhaps reach far beyond the immediate field of bird-migration. The unknown has ever intrigued the mind of man and particularly that of the scientist. Here is a problem that in its complexity and vastness must prove a very particular draw, and yet the scientist in general refrains from approaching it. Why? It seems to me that the answer lies in the fact that he is quite unable, from an enormous mass of ornithological literature, to sort out the chaff from the wheat and to put together that chain of facts so essential as a starting-point, that shall be without any weak links. He finds a wealth of good material drowned in a sea of wasted printer's ink.

I trust I am not misunderstood in the above remarks. I am not for a moment suggesting that the amateur is an impediment to scientific progress. The reverse is actually the case. Even though he be entirely innocent of the most elementary schooling in science he may yet be a highly important contributor to it. I can think of no simpler example than the man living in some isolated region who undertakes to keep meteorological records. He may be completely ignorant of weather phenomena or the significance of the very records that he is keeping, yet they may prove to be of vital importance to the deductions of some central bureau. But whether those records are going to be of value or not depends on his methods. If he only gets out of bed to read his gauges when he feels like it and at other times leaves them alone, his efforts will prove entirely worthless. If, on the other hand, he attends to his instruments in the precise and conscientious manner required of science, he is contributing to science even though he be anything in the world but a scientist. Perhaps that is the most serious weakness of the average amateur, that he does not grasp the fundamental importance of precision and accuracy. And lack of it may convert something that might be perfectly good into something that is absolutely useless. Moreover the present age, with its numberless journals and unlimited facilities for publication, seems to

have proved a veritable death-trap, to the scientist as well as the amateur. It is fashionable at the moment to publish. People speak with pride, not of the work they have accomplished,—all too often it is casual and shoddy and not worth talking about,—but of the mere fact that they have got it, and incidentally their names, into print. As though that were an accomplishment of note when dozens of editors are hunting for "copy". Ornithological journals suffer as do all others.

The lack of precision that characterizes so much amateur work is reflected here and there in much of the banding literature. One frequently sees banding, for instance, referred to as an experimental method. Yet this it is not. The placing of a band merely marks a bird. It interferes in no way with its business of life. A return is entirely dependent on chance. Five minutes after a band has been placed on the leg of a sparrow the carrier may be wiped out of existence by a hawk. Or five years later it may walk into the very trap that made possible the placing of the band in the first instance. Experiments, on the other hand, are always carried out under control. That is one of the essential merits of the experimental method.

Lists designed to assist the innocent bander in his work and to suggest profitable lines of "research" appear quite frequently. And yet, when one examines them critically, one finds that a good many of them are largely based on the assumption that all banders are trained biologists and that by the mere ringing of birds they can solve problems that Darwin himself, were he alive today, could not solve in the present state of biological knowledge. Banding can do much for ornithology but it cannot work miracles.

I cite these two items because they are probably familiar to everybody and they serve excellently as examples of inaccuracy of *thought*, just as pernicious as inaccuracy of record or statement.

The possibilities of banding as an adjunct to scientific ornithology strike me as being almost unlimited. At all events I do not believe that its limits have as yet been demonstrated. And yet it really does nothing more than associate some particular bird with two or more precisely known spots on the map in conjunction with specific dates. This is not in itself an overwhelming amount of information. But its definite and precise character gives it immediate scientific value. If any factors are introduced that may contaminate that accuracy, the system loses all its merits. Hence this "come-on-and-band" spirit addressed to the universe at large

cannot be too severely deprecated. "Picnic banding" is not only useless in itself, but it casts doubts on sound banding. A "picnic bander" may, for instance, trap a Lapland Longspur, look through some of the illustrated books to salve his conscience, put a band on it, liberate it, and send in a return for a Harris's Sparrow. Even one such error may have far-reaching effects. In the event of the band being returned sooner or later it may, since the ranges of these two species overlap at certain seasons, fail to arouse suspicion at the time. But it puts a wrong record on the map. As Harris's Sparrow returns get more abundant, some critical mind will sooner or later spot a "fishy" record. What is the effect? The possibility of many similar mistakes having been made will immediately suggest itself, and all Harris's Sparrow records may have to be scrapped or will at least fall into disrepute. But worse still, there will be no tangible evidence to incriminate the offender. All people who have banded Harris's Sparrows will innocently become suspects. Their other records will be looked at askance. Is the picnic game worth the candle? Most emphatically, *no*. The vital point in banding is its accuracy. It should be held sacred by hook or by crook. This continent, in its universal tongue, in its enormous size, and in the fact that many extensive migrants never leave it, enjoys so many advantages (over the European countries, for example) and has such assurance of generous returns, that there is not the least need, and *in any case no excuse whatever*, for seeking to inflate returns by inviting the coöperation of the casual performer who wishes only to amuse himself.

Accuracy in identification may, I think, be placed as the primary requisite in all banding activities. And precision of record would appear to come next. By this I do not mean solely that there should be no error in the date and locality. That much goes without saying. It is often possible, as numerous banders have shown, to add to such minimal data further information, equally precise. Sex, state of plumage, and age, where these can be definitely determined, are obvious examples. Such information may quite unexpectedly bring out a fact previously unsuspected. To illustrate what I mean, I might cite the following case. In my recent attempts to apply the experimental method to the solution of certain phases of migration, I have been using chiefly juncos. To save time—a commodity of which I am always short—I trap my birds only during the height of the passage through central Alberta. I can usually secure all I want in ten days. As far as my work was concerned, the exact day of capture

was apparently of no significance. It seemed sufficient to know that the birds had been taken in active southward migration at the regular season. But as a matter of principle the *exact* date of each capture was recorded nevertheless. Most of my birds are eventually sexed in the laboratory, where portions of their "insides" are preserved and fixed in various ways for microscopical examination. The sexing of the majority is therefore accurate. My liberated birds have, of course, not been so sexed, and since juvenile males cannot always be told from females, the number of females shown may be slightly inflated. But the error is not large enough to effect the general fact brought out by tabulating the sexes separately according to dates as has been done below.

JUNCO TRAPPING RECORD

1926							1927					
Female			*Male*				*Female*			*Male*		
X			X			...September 21st.....	X	X	X	X	X	X
							X	X	X			
							X	X				
X	X	X	X	X	X	...September 22nd....	X	X		X	X	X
					X					X	X	X
X	X	X				...September 23rd....	X					X
X	X											
X				X	X	...September 24th....	X					X
						...September 25th....	X	X	X	X	X	X
							X	X	X	X	X	X
X	X	X		X	X	...September 26th....	X	X	X	X	X	X
X							X	X	X			X
							X					
X	X	X	X	X	X	...September 27th....	X	X	X	X	X	X
X	X		X	X	X					X	X	X
			X	X	X						X	X
X	X	X	X	X	X	...September 28th....	X	X			X	X
X	X		X	X	X							
X	X	X		X	X	...September 29th....						
X												
X	X		X	X	X	...September 30th....	X			X	X	X
			X	X	X							X
			X	X	X							
					X							
X	X	X	X	X	X	...October 1st.....	X			X	X	X
X	X	X	X	X	X							X
X	X	X	X	X	X							
			X	X	X							
				X	X							
X	X	X	X	X	X	...October 2nd.....						
X	X	X	X	X	X							
X	X		X	X	X							
				X	X							

X	X	X	X	X	X	...October 3rd.....	X	X	X	X	X
			X	X	X						
			X	X	X						
			X	X	X						
			X	X	X						
			X	X	X						
X			X	X	X	...October 4th.....	X		X	X	X
			X	X	X						X
				X	X						
X			X	X	X	...October 5th.....	X		X	X	X
			X	X	X				X	X	X
			X	X	X					X	X
			X	X	X						
				X	X						
			X	X	X	...October 6th.....	X		X	X	X
			X	X	X	...October 7th.....					
			X	X	X						

From this table, taken in conjunction with the fact that the passage continues till the beginning of November, it is evident that the sexes travel separately in the fall, the females preceding the males, exactly the reverse to what obtains in the spring. This in not merely an interesting feature but, from my point of view, one that has unexpectedly elucidated a snag in my experimental results.

Banding is essentially a method of collecting facts. And these vary greatly in value. The fact that a bird ringed as a juvenile is taken six hundred miles away two *weeks* later is of greater significance than that such a bird is taken six hundred miles from the point of banding two *years* later. Moreover, the correct interpretation of an isolated banding fact must almost always be a matter of time. If a breeding duck has been banded in northern Alberta and is recovered during the winter in California, that fact does not attain its full significance until more records like it have shown that it was not accidental. Moreover, not until many intermediate records have been procured and the route of the species has been indicated, probably a matter of many years, has the original record reached finality. It is easy to speculate and guess how the bird came to be in California, but it is one of the particular assets of banding that it will eventually make guessing unnecessary. It establishes facts.

But facts can be more speedily procured if an organized attempt is made to get them. And the extent of success further depends largely on coöperation. The bander who puts out the occasional trap or makes the odd raid on a colony of nestlings is, of course, contributing to returns. But, owing to the fact pointed out above, it may be years before

such returns assume definite significance. If, on the other hand, a bander with limited time and opportunity makes up his mind to band, let us say, on a selected area for the same two weeks for three years in succession, his results, for several reasons, have more importance than if he spent the same amount of time (or even more) in different places at different times of the year. Not only has he three sets of facts that are strictly comparable, but mere repetition has the value of corroboration. And, as many workers have now demonstrated, the chances of repeats, at least in certain species, are very good under such conditions. For reasons such as these methodical banding is greatly superior to casual banding, and wherever possible an attempt should be made to introduce system. One merely has to point to the results obtained at such an organized station as Mr. Prentiss Baldwin's to clinch the argument.

Properly organized stations that are able to carry on continuous trapping really have certain fields peculiarly their own. Such observations as those on the progress of moult and color-changes of soft parts in the individual that keeps on repeating; the exactitude with which certain species follow an identical route year after year; the duration of the sedentary period of both winter and summer; the precise return of some birds to the same breeding or the same wintering grounds; such questions as these all come particularly into the province of the single station, and they include some of the most interesting of the many desirable facts that can be obtained by banding.

For work of wider import coöperation is almost essential. If the work of European stations is compared with activities on this continent it will be noted that much more complete information on the movements of certain species is available on the other side. A hunt for the reason—apart from the time factor which is in favor of the older European stations—leads one to notice that there has been coöperation between widely separated stations and that they have frequently worked together in an onslaught on selected species. Such coöperation is particularly commendable because a complete understanding of the movements of two or three species is of greater theoretical value than a slight knowledge of the movements of scores.

There is a type of coöperation that has, as far as I know, never been tried but that should eventually be possible, particularly on this continent and that should prove exceptionally remunerative. There are many stations situated on breeding

grounds and many on wintering-grounds of migratory species. Probably already there are cases of birds banded on a northern station during the breeding-season that have been taken on their wintering-grounds by some southern station. If such a link exists it could be exploited with the most extraordinary advantage, for it would connect both ends of a complete migration-range. The possibilities of organized coöperation in such a case would be beyond compute. There are countless much wanted facts to the procuring of which such a form of attack would particularly lend itself.

If I seem unduly to stress the collecting of facts it is merely because this is the essence of banding and is the bander's primary objective. In the majority of cases it is his only one. Only a few are qualified to put an interpretation on the facts. And this is not in any sense a slur on banders. A reason has already been offered. Without a sort of bird's-eye conception of the possible underlying biological principles a profitable conjecture on the theoretical value of the facts is the most unlikely thing in the world. Let me offer a simple illustration of what I mean. Included in modern ornithological literature is a vast collection of articles and pamphlets to some of which very famous ornithological names are appended. Any layman reading these would be permanently convinced that agriculture is wholly dependent on the activities of birds for its very existence. Such exceptional countries as Italy, where birds are scarce enough to throw serious doubt on the local application of this popular belief, are discreetly ignored. And yet it can be logically and far more convincingly shown that if birds were completely absent from an agricultural country the insect parasites of insects, through themselves remaining unmolested by birds, would keep harmful insects under better control than they are kept today by the parasites enjoying the assistance of vast hosts of "beneficial" birds. For an excellent presentation of this interesting case let me commend to my readers the article "Can Birds Hold Injurious Insects in Check?" by Professor E. H. Strickland (*Scientific Monthly*, Jan., 1928, pp. 48-56). There are no doubt hundreds of ornithologists to whom this viewpoint, undoubtedly the correct one, has never occurred. Yet in biological literature, written by people who are generally assumed to know nothing of the field aspects of entomology or ornithology but nevertheless possess that biological knowledge that gives them the advantage of the "bird's-eye" view, indispensable to a correct perspective of the problems of life and living organisms, one occasionally sees such remarks as this: "But

probably far more caterpillars are eaten from inside by parasitic insects than from outside by birds" (Haldane, *Possible Worlds*). Here is the correct interpretation of the facts in a nutshell; a comment *en passant*, in the writings of a *biochemist*.

What is perhaps the most nearly sound theory extant on the mechanism of annual migration was propounded some twenty years ago by a world-famous physiologist, Sir E. Sharpey-Schaefer (*Nature*, Vol. 77, pp. 159-163). Had he been an ornithologist in his leisure time and been more conversant with the field facts, he might well have solved the problem completely.

So far I have purposely persisted in speaking of the amateur who is without biological knowledge, for he undoubtedly represents the vast majority in the ranks of popular ornithology and bird-banding. But there is the other who has also had no professional training but who has educated himself by wide and judicious reading. Amateurs of this class have made momentous contributions to science. It is only necessary to mention such names as the priest Mendel's, whose experiments in heredity are still the basis of an enormous output of professional effort, or W. F. Denning's, probably the world's greatest authority on meteors, or Faraday's, a bookbinder by profession, to point the argument. There are, in fact, no limits to the attainments of a talented amateur of this class. It is, perhaps, such as these in the ranks of ornithology who will ultimately show us the full biological import of the migration of birds.

If this article has the appearance of being combative, it has been written in no such spirit. Perhaps my arguments are actually full of flaws. As I suggested at the outset, even biologists can let their eyes wander from the microscope and become temporarily human—and it is human to err. But as some one who is attempting to apply the methods of experimental zoölogy to the very complex problem of bird-migration and who may thereby claim a more than casual interest in the fruits of banding, I must of necessity hold concrete views on the possibilities and limitations of the system. These views, if they are of any value at all, are surely the more so by virtue of being critical.

They can be summed up as follows: Banding is in essence a method of collecting facts. In itself it goes no further. Since the facts obtained pertain to the biology of birds, their interpretation must rest in the hands of the student of biology, amateur or professional, inside or outside of the ranks of banding, it matters not. The quality and quantity of produc-

tion—both are desirable—depend on the efforts of the active workers, the majority of whom are undoubtedly not scientists. Let them remember that quantity without quality is wasted effort; that the same ingenuity and perseverance exhibited by them in the designing and perfecting of their traps can be extended, and should be, to the cultivation of precision, method and cooperation, upon which the ultimate success of banding largely depends; that it is no more creditable to be a biologist than to be anything else; that if they happen to be something else and yet have scientific aspirations, there is this consolation: The conscientious acquiring of facts constitutes not only as vital a contribution to the progress of science as the formulation of theories, but a more stable one.

In case I have sounded discouraging, may I add another word. Provided their interest is serious, there cannot be too many banders in the field or too many stations. The more there are, the greater will be the returns and the sooner will banding bring those results that it alone can bring, essential to a full understanding of migrations of birds. Even the bander with a limited knowledge of birds can work in such a manner as to safeguard himself from all criticism. He can, for instance, devote his time to the study of certain species only and let all other birds depart without band or record. That would constitute scientific precision, would increase the output of *reliable* data, would bring neither his own nor other people's work into disrepute and would greatly assist the progress of scientific banding. Perhaps I should also add that I am well aware that there are hundreds of banders who have adopted the principles that I have tried to outline above. My remarks are addressed to the other hundreds who have perhaps never even thought of them.

Edmonton, Alta.

NOTES ON THE INVASION OF NEW ENGLAND AND OTHER ATLANTIC STATES BY THE NORTHERN SHRIKE DURING THE WINTER OF 1926-27[1]

BY CHARLES B. FLOYD

THE occupation of New England by the Northern Shrike (*Lanius borealis*) during the winter of 1926-27, was so pronounced and widespread that I have attempted to obtain from the members of the Northeastern Bird-Banding Association and a few banders in the coast States between New England and Virginia information connected with their stay that would throw light upon the cause of their coming and perhaps also produce data of interest concerning their habits in this portion of their winter range.

Bird-banding has established many widely distributed observers in New England and the Maritime Provinces, who, particularly in the winter season, make daily observations on the happenings at banding stations. They, therefore, were able in response to a questionnaire sent them in March to furnish data regarding the number of Northern Shrikes present about their stations during this last invasion. Over three hundred and thirty questionnaires were mailed, and replies were received to over one half of them. In addition to these replies, I had the privilege of examining all of the correspondence sent to E. H. Forbush last winter by his regular observers, which was considerable and which contained no little amount of helpful information[2].

The records of one of the oldest observers, now a member of the Northeastern Bird-Banding Association, Charles J. Maynard, dating back to the year 1866, show that during the winter of 1866–67 there was a pronounced influx of Northern Shrikes. He states that early in October Redpolls and Shrikes were common in Maine and were abundant in Massachusetts a month later. At irregular intervals since that date published records show that New England has been similarly invaded by this species periodically. During some winter seasons they are seldom seen, but thus far no satisfactory explanation for this fluctuation in numbers has been offered.

[1]Read, essentially in its present form, before the Nuttall Ornithological Club on May 2, 1927.

[2]In replying to the questionnaire observers generally did not, unfortunately, attempt to separate the Migrant Shrike (*Lanius l. ludovicianus*) from *borealis*.

Shrikes have been noted in unusual numbers during the winter just passed (1926–27) in Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, and New Jersey. In the Province of Quebec they were present in the usual numbers. Robie W. Tufts reports from Wolfville, Nova Scotia, on December 17th that they were unusually plentiful in that section of the Province. However, it should be noted that while several banders report them unusually abundant, others in the same State and county merely noted an occasional bird.

The first Shrike of which I have record during the past winter season was seen in Massachusetts on October 28th by A. A. Cross in Huntington, whereas the species was observed in Connecticut a week earlier, October 21st, at the Birdcraft Sanctuary, Fairfield, and was reported by Warden Frank Novak. The date of last appearance in Massachusetts is April 14th. Charles J. Maynard, of West Newton, writes that according to his records the average final date of their stay in this State is April 10th.

Only two records of the Migrant Shrike were received,—the first on December 4, 1926, from Dr. Alexander Wetmore in Maryland, a rare occurrence in that State, and one from S. Gilbert Emilio, of Danvers, Massachusetts. The latter observation was made on September 1st and 5th and again on March 26th in Essex County, Massachusetts. The lack of records of this species which is rarely found in New England is, of course, not surprising, for it is difficult positively to identify it unless the birds are in hand.

Most of the answerers report only one Shrike to a given locality, but if that one was destroyed, another often took its place. Only occasionally was there more than one Shrike noted about a banding station at a time, and the appearance of a second one after the first was shot generally occurred where there was a concentration of smaller birds.

Observers occasionally witnessed the capture of small birds by this species which were captured both inside traps and about banding stations. Five observers report witnessing the capture of Tree Sparrows; three of Fox, Song, and White-throated Sparrows (one of each species); two of the Junco and Purple Finch, while three persons saw the Chickadee captured. These make a total of fourteen species and twenty-six individuals of residents or winter visitors that fell victims to the Shrike. To the list of species known to have been captured may also be added the Horned Lark and

Hairy Woodpecker,[1] possibly the Rosy Finch[2] and the White winged Crossbill.[3]

The following table shows the number of persons seeing various species of birds destroyed outside of the traps:—

Number of Persons Witnessing the Killing of the	
English Sparrow	Nineteen
Song Sparrow	Two
Tree Sparrow	Four
White-throated Sparrow	One
Fox Sparrow	One
Redpoll	Two
Goldfinch	One
Chickadee	Four
Starling	One
Myrtle Warbler	Four
Junco	Four
Robin	One
Golden-crowned Kinglet	One

Several reports are at hand of unsuccessful attempts to capture White-breasted Nuthatches, English Sparrows, Downy Woodpeckers, etc. In several cases where a Shrike pursued Nuthatches, the latter escaped capture by entering a hole in a tree or a nesting-box. The Downy Woodpecker often out-manœuvred its pursuer by constantly turning and dodging in the air rather than by flying away in an attempt to escape by speed, as do almost all the other small birds. Twice this winter I have personally watched a Shrike attempt to capture a Downy Woodpecker from above. Each time that the Shrike swooped to strike the bird, the Downy turned quickly in the air at a sharp angle, the Shrike overshooting its mark. It then turned with much more effort than the Woodpecker, and again took up the pursuit. So long as they were in sight—and I saw the Shrike swoop a number of times—the Woodpecker continued on its way apparently unafraid, and dodged each attack with ease. A condensation of reports sent in shows that almost invariably the Shrike seizes its victim from above, securing a firm hold and bearing the unfortunate bird to the ground, where repeated blows on the base of the skull or region of the nape soon kill it. The Shrike then often flies to a convenient nearby perch, where it surveys its kill, and if there are still signs of life, it once more descends and pecks violently at the head. When the

[1]Lincoln, F. C. *The Auk*, Vol. XXXVII, 1920, p. 74.
[2]Warren, E. R. *The Auk*, Vol XXVII, April 1910, p. 150.
[3]Ferry, J. F. *The Auk*, Vol. XXIV, April 1907, p. 128.

victim is despatched, it is carried to a tree or shrub where it can be securely lodged or impaled.[1]

Opinions differ widely as to the comparative ability of the Shrike and the Hawk as destroyers of birds. It is certain that this species has not the skill in capturing birds possessed by the Cooper's or Sharp-shinned Hawk or the Goshawk.

The Shrike has two methods of attack. The first is a rapid, unexpected swoop downward upon the intended victim from a perch. If this is not successful, the Shrike returns to its favorite post and waits for the excitement caused by its presence to subside and then launches an attack upon another bird. The other method is an out-and-out chase, which may prove successful. My personal belief is that the Shrike, while a rapid flyer, cannot turn and dodge in the air, thicket, or hedge, as readily as the smaller birds on which it feeds. Surprise and ferocity are the chief features of its attack. Observers have noted that many such pursuits are unsuccessful, the pursued outmanœuvring the pursuer and escaping by dodging or seeking refuge in a hole, thicket, or almost any haven that can be reached in time.

The question was asked whether or not the Shrike carried its prey in its bill or claws. The following are the replies to that question:

Persons observing the use of bill in carrying prey—Thirteen
Persons observing the use of claws in carrying prey—Seven
Persons observing the use of both in carrying prey—Three

During the six months from October to April, sixty-two Shrikes were reported destroyed by banders, while eight were banded and released.

Northern Shrikes are particularly destructive and annoying about a feeding or banding station[2]. Their audacity is well known. They do not hesitate to seize a bird newly banded when it flies from the bander's hand, and they enter a trap, barn, room, or hen-house with absolute unconcern when birds or mice are seen there. In the trap they kill all the birds there before considering how they may escape or pausing to eat. A Shrike that was seen to enter an electric-car barn in pursuit of an English Sparrow killed all the Sparrows in the barn, without thought of itself or pausing to eat any of its victims. Another Shrike chased an English Sparrow into a

[1]See *Bird-Lore*, Vol. XX, Nov.-Dec., 1918, p. 401, "Where the North Wind Blows," by A. A. Allen.

[2]Jonsen, J. K. *The Auk*, Vol. XL, April, 1923, p. 333.

barn, where the bird, terror-stricken, crawled into a crevice. The Shrike was unable to reach its victim, but remained all day in the barn before abandoning the chase.

When intent upon the capture of its next meal, the Shrike loses all sense of fear of man. Mrs. Richard B. Harding writes that at her station in Cohasset, Massachusetts, a Shrike dropped upon a trap in which there were other birds, and attempted to effect an entrance. Its movements terrified the imprisoned birds, and although Mrs. Harding endeavored to drive it away by approaching the bird closely and shouting at it, the Shrike would not leave the immediate vicinity. When she went back into the house, the Shrike instantly returned to the top of the trap, and only after she secured a broom and actually struck at the intruder several times, did it give up and abandon the premises.

Mrs. N. P. Richmond, of North Middleborough, states that early one morning her attention was called to her feeding-shelf by the alarmed calls of a group of Chickadees. She says: "I rushed to the window-tray, and as I neared it, the Shrike flew to a rose branch within two and a half feet of my face. It sat there calmly, regardless of the fact that I made a pass at the bird and tried to scare it by screaming. The bird did not move until I went outside and flourished a towel, then flying only a few yards to an electric-light wire. Later on another came to the same place, chasing away the Chickadees which were feeding at the tray."

Concerning the destructiveness of Shrike at a banding station, Laurence B. Fletcher writes: "At my station at Cohasset, a Shrike came into an apple tree just over a trap in which there were three Juncos and one Tree Sparrow in the second division of the trap. The Shrike then landed on the top of the trap, greatly frightening the birds. When the Shrike found it could not reach them, it without hesitation entered the trap through the door, going directly into the division which contained the birds and killed them, one after another, by pecking them on the head. After this was done, the Shrike realized that it was trapped and tried to escape by climbing about the trap as other birds do. There was no evidence that the Shrike attempted to eat any of the birds."

Small birds often remain motionless or "freeze" when a Shrike is seen, as they do at the presence of a Hawk, and they thus escape capture.

It is suggested in a communication from Miss Harriet Flagg, of Springfield, Massachusetts, who observed a Shrike kill a Sparrow and fasten it in a lilac bush by forcing one leg under

a twig, that this bird did not spend all its time in search of prey. She writes, "I saw a Shrike fly and run after a dry leaf which was blown about by the wind. The bird seemed to be playing with it."

Arthur Morley, of Swampscott, Massachusetts, who kept a Shrike in captivity four days, fed it on the remains of five birds previously killed by the Shrike in a trap. All parts of the five birds were eaten except the wings, bill, and tarsi. The skull was also broken up and swallowed, so that nothing remained except as noted. Some time after a meal the Shrike would eject several pellets which measured from half an inch long to one and one-eighth inches. They averaged three-eighths of an inch in diameter.[1]

This interesting obervation is confirmed by Robert K. Smith, of Westfield, Massachusetts, who observed a Shrike kill and eat a Tree Sparrow within fifty feet of his study window. The Shrike occupied "an hour or so" in completing its meal, and when it had finished, nothing remained but the wings and some fine breast feathers, while among them was a pellet similar in appearance to those disgorged by a Hawk or Owl.

It has been suggested that the movements of Shrikes coincide to a considerable extent with a similar movement of species upon which they prey in winter-time, particularly the Redpoll and the Siskin, and that they follow flocks of these birds into New England and farther south. In order to test these theories, I have subjected the data available to careful study. There are many references scattered through the literature regarding the bird population in New England during the winter season, but the Christmas censuses published in *Bird-Lore* furnish the most sustained available information. Summed up, there appears to be little to support the view that the invasions by Shrikes coincide with the movements into New England of Redpolls, Siskins, or other northern species, in numbers, as will be seen by the following table:—

1911 Redpolls very abundant. Crossbills and Shrikes rare. Snow Buntings in usual numbers. Shrikes generally scarce.

1914 Redpolls and Crossbills scarce. Siskins very abundant. Shrikes usually well distributed.

1915 Redpolls, Crossbills, and Siskins rare. Shrikes scarce.

1917 Redpolls and northern birds generally abundant. Shrikes rare.

1918 Redpolls and northern birds rare. Shrikes abundant.

[1]Floyd, C. B. *The Auk*, Vol. XL, July, 1923, pp. 542–543.

1920 Redpolls, Siskins, and Crossbills unusually abundant. Shrikes rare.
1922 Redpolls few, all northern species scarce. Shrikes very abundant.
1927 Redpolls and Siskins scarce. Shrikes numerous.

It will be noted that only in 1914 was a visitor from the North (the Siskin) present in numbers as well as Shrikes, an accordance too infrequent to be judged as other than a coincidence in the face of several seasons in which the appearance of Shrikes in large numbers was without an influx of Redpolls, Siskins, etc., as an abundant accompaniment. I have also been unable to link up the presence here of the Great Horned Owl and the Goshawk in winter with the presence of Shrikes, Redpolls, and Siskins.

Comparatively few persons appear to have heard the bird sing and know from experience the beauty of the song. The earliest date on which the song was heard is October 21st in Connecticut at the Birdcraft Sanctuary in Fairfield. Warden Frank Novak reported the observation. It may be that the warm weather on this date encouraged the singer, for no song records were reported during November, December, or January until the 30th of the last named month. During February and March, from Connecticut to Maine, the song was heard on various dates. L. McI. Terrill in Montreal, Canada, heard them sing on the 13th of February, and writes that by April 4th they were in full song. By far the greater number of persons returning the questionnaire did not hear the Shrike sing at all. A statement comes from Rudyard Bolton of the American Museum of Natural History that he heard their "call notes" on December 27th, but no song.

One of the indirect benefits that can be credited to English Sparrows is that they comprise a large part of the food on which the Shrike subsists during the cold months when wintering in New England, and because of the abundance of this Sparrow, the mortality among other and more useful species is undoubtedly lessened.

During the warmer days, even in winter time, when considerable bare ground exists, this species returns to its normal food-supply, which consists of small rodents and insects.

Auburndale, Massachusetts
July, 1927

THE AGE OF BANDED BIRDS

BY M. Y. LAFRANCHISE

In the July, 1927, number of the *Bulletin of the Northeastern Birding-Banding Association* appeared an article on "The Age of Banded Birds" by Mr. John T. Nichols. This article contained a list setting forth the approximate minimum ages of banded birds, indicated by the first and last records of the individual bird.

At Mr. Nichols's suggestion, I have compiled a further list from the Official Canadian Record of Bird-Banding Returns, as published in *The Canadian Field-Naturalist* from May, 1924, to January, 1928. This Record contains information concerning (1) birds banded in Canada and recovered in Canada or elsewhere, and (2) birds banded outside of Canada but recovered in Canada.

When the first record for a bird in the following list is in late winter or spring, it is assumed that the bird dates at least from the preceding summer. Reference is given to the volume and page of the *Naturalist* in which the complete banding return may be found.

LIST OF BANDED BIRDS AND AGES

(*Compiled from the Official Canadian Record of Bird-Banding Returns as published in "The Canadian Field-Naturalist" from May, 1924, to January, 1928.*)

Pied-Billed Grebe, 4 years, *adult at first record*, XLI, 1927, p. 157, 210964.

Black Guillemot, 3 years, *adults at first record and still alive at last record*, XL, 1926, p. 158, 210101, 210123, 114543, 114552, 210120.

Common Murre, 3 years, *adults at first record and still alive at last record*, XL, 1926, p. 158, 159, 204685, 204710, 204713;
adults at first record, XLI, 1927, p. 157, 204674, 204709;
juvenile at first record, XLI, 1927, p. 167, 204724:
4 years, *adults at first record and still alive at last record*, XLI, 1927, p. 167, (204688, 389227)[1], 204665, (204717, 334221, 389283)[1].

Glaucous-winged Gull, 3 years, *nestling at first record and approximate date for last record*, XLI, 1927, p. 157, 232858.

Great Black-backed Gull, 3 years, *juvenile at first record*, XLI, 1927, p. 94, 5828[2].

Herring Gull, 3 years, *young at first record*, XXXIX, 1925, p. 191, 100696; *approximate date for last record*, XLI, 1927, p. 157, 228976.

[1]Old band removed and replaced by new one.

[2]Band of the American Bird Banding Association.

Mallard, 3 years, XXXIX, 1925, p. 191, 102695, 230528; p. 192, 102132; XLI, 1927, p. 95, 36837[2], 36858[2]; p. 142, 101198, 230469, 230691; p. 143, 230797, 230804, 231090; p. 158, 203387, 203392, 203414, 205257; p. 203, p. 204, p. 205, four birds wearing Mr. Jack Miner's bands which are not individually numbered; XLII, 1928, p. 21, one bird wearing Mr. Jack Miner's band not individually numbered;
approximate date for last record, XXXIX, 1925, p. 191, 102505; XLI, 1927, p. 142, 230070; p. 158, 203524, 205776;
adult at first record, XLI, 1927, p. 95, 25915[2];
still alive at last record, XLI, 1927, p. 191, one bird wearing Mr. Jack Miner's band not individually numbered:
4 years, XLI, 1927, p. 192, p. 206, two birds wearing Mr. ack Miner's bands not individually numbered; XLII, 1928, p. 18, one bird wearing Mr. Jack Miner's band not individually numbered;
approximate date for last record, XLI, 1927, p. 142, 37424[2];
5 years, XLI, 1927, p. 157, 102013;
still alive at last record, XLI, 1927, p. 191, two birds wearing Mr. Jack Miner's bands not individually numbered:
6 years, XLI, 1927, p. 192, one bird[3];
still alive at last record, XLI, 1927, p. 191, two birds[3]:
7 years, XLI, 1927, p. 207, one bird[3];
approximate date for last record, XLI, 1927, p. 192, one bird[3]:
10 years, *approximate date for last record*, XLII, 1928, p. 20, one bird[3].

Black Duck, 3 years, XXXVIII, 1924, p. 92, 4620; XXXIX, 1925, p. 170, 204908; p. 191, 4777, 37327[2]; p. 192, 102991; XLI, 1927, p. 143, 101294; p. 144, 207972, 207996, 228413; p. 158, 202539; p. 159, 297736;
approximate date for last record, XXXIX, 1925, p. 191, 207626;
adult at first record, XLI, 1927, p. 95, 36986[2], 36922[2]:
4 years, XLI, 1927, p. 158, 204924:
5 years, XXXIX, 1925, p. 191, 36997[2]; XLII, 1928, p. 18, one bird[3]:
10 years, XLII, 1928, p. 24, one bird[3].

Blue-winged Teal, 3 years, XXXVIII, 1924, p. 92, 4577; XXXIX, 1925, p. 191, 4724; XLI, 1927, p. 144, 207698;
approximate date for last record, XLI, 1927, p. 144, 101264.

Pintail, 3 years, XLI, 1927, p. 95, 36269[2], 35793[2]:
See foot-note No. 1.

Scaup Duck, 3 years, XXXIX, 1925, p. 171, 228781.

Lesser Scaup Duck, 4 years, XLI, 1927, p. 94, 35823[2].

Canada Goose, 3 years, XLI, 1927, p. 193, one bird[3]; p. 194, seven birds[3]; p. 204, one bird[3]; p. 206, one bird[3]; XLII, 1928, p. 18, one bird[3]; p. 19, three birds[3];
approximate date for last record, XLI, 1927, p. 192, one bird[3]; XLII, 1928, p. 19, one bird[3];
still alive at last record, XLI, 1927, p. 191, six birds[3] at least; XLII, 1928, p. 22, one bird[3]:
4 years, XLI, 1927, p. 194, two birds[3]; p. 206, one bird[3];
approximate date for last record, XLI, 1927, p. 194, one bird[3]; XLII, 1928, p. 22, one bird[3];

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[3]Wearing Mr. Jack Miner's band not individually numbered.

[1]It is interesting to note that a Pintail, banded by Dr. Alexander Wetmore, in the Bear River Marshes of Utah, during the autumn of 1914, was killed in southeastern California, twelve years later. (*National Geographic Magazine*, Jan., 1928, p. 118.)

approximate dates for first and last records, XLII, 1928, p. 18, one bird[3];
still alive at last record, XLI, 1927, p. 191, four birds[3] at least:
5 years, XLI, 1927, p. 193, one bird[3]; p. 194, two birds[3];
approximate date for last record, XLI, 1927, p. 194, two birds[3]; XLII, 1928, p. 22, four birds[3];
still alive at last record, XLI, 1927, p. 191, two birds[3]:
6 years, XLI, 1927, p. 192, one bird[3]; p. 193, one bird[3];
approximate date for last record, XLI, 1927, p. 194, one bird[3]; XLII, 1928, p. 22, two birds[3];
7 years, XLI, 1927, p. 194, one bird[3];
8 years, XLI, 1927, p. 194, one bird[3];
approximate date for last record and still alive at that time, XLI, 1927, p. 191, one bird[3];
9 years, *still alive at last record*, XLI, 1927, p. 191, one bird[3].

Californian Partridge, 3 years, *still alive at last record*, XL, 1926, p. 159, 260921.

American Goshawk, 4 years, *immature at first record*, XLI, 1927, p. 144, 202406.

Swainson's Hawk, 3 years, *juvenile at first record and still alive at last record*, XLI, 1927, p. 167, (233105, 233106)[1].

Downy Woodpecker, 3 years, *adult at first record and still alive at last record*, XL, 1926, p. 159, 15836.

Steller's Jay, 3 years, *still alive at last record*, XL, 1926, p. 159, 260908;
juvenile at first record and still alive at last record, XL, 1926, p. 159, 260903;
adult at first record and still alive at last record, XL, 1926, p. 159, 260902.

Crow, 3 years, XXXIX, 1925, p. 171, 210671.

Baltimore Oriole, 3 years, *still alive at last record*, XL, 1926, p. 160, 241924.

Bronzed Grackle, 3 years, *still alive at last record*, XL, 1926, p. 160, (113356, 314283)[1].

Evening Grosbeak, 3 years, XLI, 1927, p. 159, 110630.

Tree Sparrow. See foot-note No. 2.

Chipping Sparrow, 4 years, *adult at first record and still alive at last record*, XL, 1926, p. 158, 26825.

Slate-colored Junco, 4 years, *adult at first record and still alive at last record*, XL, 1926, p. 159, 74994.

Song Sparrow, 3 years, *adults at first record and still alive at last record*, XL, 1926, p. 158, 26829; p. 159, 64021, 64042, 52389.

Oregon Towhee, 3 years, *still alive at last record*, XL, 1926, p. 161, 119531.

Barn Swallow, 3 years, *adult at first record and still alive at last record*, XL, 1926, p. 160, 54769.

Catbird, 3 years, *still alive at last record*, XL, 1926, p. 160, 28140:
5 years, XL, 1926, p. 158, 53981[2].

Chickadee, 3 years, *adults at first record and still alive at last record*, XL, 1926, p. 160, 83541, 83545, 83551.

Robin, 3 years, *juvenile at first record*, XLI, 1927, p. 94, 214[2];
adult at first record and still alive at last record, XL, 1926, p. 160, 110922.

[2]Mr. Wendell P. Smith, of Wells River, Vermont, has very kindly furnished the information that Tree Sparrow No. 43559, which he banded on January 28, 1924, returned for the third time on February 10, 1928, while Tree Sparrow No. 43563, banded on February 13, 1924, returned for the second time on February 23, 1928. These two birds will be at least five years old this coming summer.

ABNORMAL YELLOW COLORATION OF SWAMP SPARROWS

BY EDWARD GOULD ROWLAND, M.D.

SINCE publishing my "Notes on Swamp Sparrows" (*Melospiza georgiana*) in the July, 1925, number of the *Bulletin of the Northeastern Bird-Banding Association*, I have banded many birds of this species, new facts have come to light, and a problem has arisen which appears to be worthy of further investigation.

My traps, varying in number from nine to twelve and of various designs, were all located on the edge of a swamp in which grew cat-tails and alders, interspersed with grass tussocks. Around the edge of the swamp was a miscellaneous growth of red osier dogwood, raspberry and blackberry bushes, and spirea. The water-level varied at intervals, and occasionally I had to move my traps back in order to attend to them properly. For bait I used bread-crumbs, chick-feed, and gristmill sweepings. Swamp Sparrows bred here, as was evidenced by the fact of very young birds being trapped as early as June 25th.

This problem concerns the status of abnormally colored Swamp Sparrows having an excess yellowness occurring before the eye, as a superciliary band, occasionally the axillars, etc.

Since my observations were made, in 1925 and in 1926, several references in the literature to abnormally colored Swamp Sparrows have been brought to my attention by Charles L. Whittle in a letter recently received. These references follow my own observations at the close of this paper.

As I have had the good fortune to band a considerable number of this species, some as nesting birds and others as migrants, a tabular record of the same is offered below:

SWAMP SPARROW BANDING RECORD BY YEARS

	Ages Undetermined	*Known Immature*
1924	72	
1925	56	8
1926	49	23
	177	31

The migration of Swamp Sparrows in 1926 lasted only fourteen days as against twenty-four days in 1925. The first bird was trapped in 1926 on September 19th, the last on October 3rd. During this short season I trapped seven yellowish

birds. No yellowish bird has been trapped in spring, and none earlier in the fall than September 19th.

Of the birds banded in 1925 many showed more or less yellow before the eye: eleven were conspicuously so marked.

The details of these eleven abnormally yellow Swamp Sparrows, which were probably young in first or second winter plumage, appear below:

No.	*Banding date*	*Remarks*
A32886	Sept. 24, 1924	Yellow lores.
A32895	Sept. 28, 1925	Yellow lores and sides of head. Bend of wing and line over eye yellowish.
A32932	Oct. 9, 1925	Yellow lores, chin white speckled with faint gray spots.
A32960	Oct. 17, 1925	Yellow lores; bend of wing, line over eye, and chin canary yellow. Yellow axillary feathers. Chin flecked with dark spots, with two black stripes. Post-ocular line brilliant black.
A80719	Sept. 19, 1926	Yellow lores.
A80728	Sept. 26, 1926	Yellow lores and bend of wing.
A80738	Sept. 29, 1925	Yellow-tinged throat.
A80741	Sept. 30, 1926	Yellow-tinged throat.
A80748	Oct. 1, 1926	Sides of head and throat yellowish.
A80751	Oct. 2, 1926	Throat and bend of wing yellowish.
A80754	Oct. 3, 1926	Throat and bend of wing yellowish.

It is thought probable since the yellow coloration was found only on birds trapped after September 23rd, when my known nesting birds of this species had disappeared from the station, that they were birds breeding to the north of Belchertown.

The foregoing was written many months ago, but publication was withheld until specimens of the birds could be obtained for exhibition. The editor, however, now advises in the light of past references in the literature to abnormally yellow Swamp Sparrows that my examples of abnormally colored birds be placed on record, and that an effort be made to trap and collect this species in the same swamp in which my birds were trapped in the hope of definitely determining their status. Although I am no longer a resident of Belchertown, I have made arrangements with Dr. George E. McPherson to carry on the suggested investigation this coming fall. It is desirable, however, that any bander handling this species should keep the problem in mind, and should others trap birds especially yellow, it is hoped that they may be able to have them critically examined by an expert ornithologist. Mr. Whittle's notes follow:

"In Baird, Brewer, and Ridgway's 'History of North

American Land Birds,' plate XLVI, Vol. II, 1874, fig. 9, there is a colored head of a sparrow having the name *Passerculus caboti* below, the bird having the number '62373, Nahant'. This figure shows a grayish-white superciliary line terminating anteriorly in a yellowish spot. Oddly enough the text of the work makes no mention of this bird, which is now in the Smithsonian Institution. Mention of this bird next appears in the literature in the *Bulletin of the Nuttall Ornithological Club*, Vol. VIII, 1883, page 58, where Coues refers to it as 'a young *Melospiza palustris*, in a plumage hitherto unrecognized in which there is a decided yellow spot before the eye, and a vague yellowish suffusion of the cheeks and throat.' Coues also states (p. 58) that he had lately received a Swamp Sparrow from S. W. Willard of West DePere, Wisconsin, having a yellow loral spot 'about as in *Ammodramus maritimus* and nearly as bright as in *Zonotrichia albicollis*.'

"In *The Auk*, Vol III, 1886, pp. 277, under the title 'Imature Dress of *Melospiza palustris*', by R. H. Bulley, appears a second note on a young female of this species taken in Canton, Ohio, October 16, 1885, of which Bulley writes that this bird differs from adults as follows: 'Supereiliary line pale but distinct lemon-yellow; crown dark chestnut-brown, only slightly darker on the forehead, where the black streaks become more numerous, without any of the bright chestnut of the adults; median line ashy, faintly tinged with yellowish; sides of head and lower throat faintly tinged with yellowish brown, which color extends along the front half of the cervical collar; the black streaks on the back and the bay on the wings less prominent.' He comments further on the bird, writing, 'The yellow superciliary line * * * being so distinct, and contrary to the usual description of the genus, seems to be worthy of the attention of ornithologists.' Coues, as a member of the editorial staff of *The Auk*, remarks in parenthesis concerning Bulley's note: 'This is another case of *Passerculus caboti*.'

"The next published reference to *Passerculus caboti* appears in Ridgway's 'Birds of North and Middle America,' part I, p. 384, under the synonymy of *Melospiza georgiana*, where he refers to the Nahant bird as an immature *M. georgiana* with a 'yellow tinge to the head.'

"Regarding the *Passerculus caboti*, I learn from Mr. Ridgway that he and Professor Baird discussed the matter of a name for the type specimen in question, and that he (Mr. Ridgway), as he recalls the matter, suggested the specific name *caboti*, both believing that it represented a variation of the Swamp Sparrow. Mr. Ridgway also writes: 'Should this prove to be

the case, the name *caboti* would, under the rules, hold as being based on the color figure cited, together with mention in the Birds of North and Middle America * * *.'

"From Alexander Wetmore I learn that the Nahant Bird, No. 62373, is represented in the Smithsonian collection only by the head and neck and that it was shot by Dr. Samuel Cabot, Jr., no sex or date given."

Norwich, Connecticut (State Hospital)

EVENING GROSBEAK RECOVERIES

BY M. J. MAGEE

At my banding station at Sault Ste. Marie, Michigan, I have banded 876 Evening Grosbeaks (*Hesperiphona v. vespertina*), 192 during the present winter, 1927-28.

Out of a total of 684 banded between March 25, 1923, and the present winter, I have reports of five recoveries, as follows:

110630 Adult female. Banded March 23, 1924. Killed at St. Charles County of Bellechasse, some twenty-five miles east of the city of Quebec, Canada, March 9, 1926.

68450 Adult male. Banded March 15, 1925. Killed by striking a telegraph-wire at McMillan, Michigan, about seventy miles west of the Soo, early in July, 1926.

338520 Adult male. Banded March 14, 1925. Trapped at West Hartford, Connecticut, January 30, 1928, by Mrs. H. G. Pratt.

393454 Adult male. Banded February 27, 1927. Found at Lorretteville, three miles from the city of Quebec, Canada, February 10, 1928, by Mr. M. Verret.

462170 Adult female. Banded March 10, 1927. Trapped at Huntington, Massachusetts, February 22, 1928, by Mr. Don V. Messer.*

In addition to these, Mr. Charles L. Whittle has sent me the following Evening Grosbeak recovery records taken from reports of the Bureau of Biological Survey, or from unpublished sources: "The first recorded recovery of a banded Evening Grosbeak was of a bird, No. 10090, banded by Mrs. Alice B. Pratt in Middleborough, Massachusetts, April 27, 1922, which was trapped by George H. Priest in the city of Brockton, Massachusetts, April 3, 1924. Brockton is approximately seventeen miles nearly due north of Middleborough.

*An additional recovery has just been reported by the Biological Survey, namely Evening Grosbeak 482043 banded by me March 26, 1927, was found exhausted by A. H. Roper at Menominee, Michigan, March 17, 1928. Menominee is one hundred and ninety miles south of west of the Soo, just on the Wisconsin line. A letter from Mr. Roper states that the bird died the next day.

"In the *Technical Bulletin*, No. 32, recently issued, page 48, it is recorded that an Evening Grosbeak banded by Frank W. Commons, July 1, 1923, at Island Lake, Minnesota, was recaptured at Northome, Minnesota, June 26, 1924. I learn, however, from Dr. Thomas S. Roberts, of Minneapolis, that the place this bird was taken is incorrectly stated in the *Technical Bulletin*, and that it was actually recaptured by Miss Carolyn Jensen as a return at the identical spot where it was banded in 1923."

The following is from notes published by me in the September, 1926, number of *The Wilson Bulletin:*

"Evening Grosbeak, No. 110630, banded on March 23, 1924, was reported by Deputy Minister L. K. Richard of the Department of Colonization, Mines, and Fisheries, Province of Quebec, as having been killed near Quebec. I wrote Mr. Richards, and he replied, 'Bird was killed at St. Charles, County of Bellechasse, some twenty-five miles east of Quebec on March 9, 1926.' This place is some six hundred and fifty miles east of where the bird was banded. Dr. Christofferson and I have suspected for some years that there was more of an east-and-west movement of our Evening Grosbeaks than north and south. This report from Quebec strengthens our suspicion."

Now with two records from Quebec, one from Connecticut, and one from Massachusetts to the east, and the McMillan record to the west, this east-and-west movement is more strongly indicated. West of Lake Superior, from what reports I have been able to get, I believe the Evening Grosbeak movement tends strongly to the north, but I am pretty well satisfied that east of that point the movement is south of Lake Superior, not north of it.

The following is from some notes of mine published in the February, 1928, number of the *Jack-Pine Warbler*, the *Bulletin* of the Michigan Audubon Society:—

"The Evening Grosbeak is usually stated to be an irregular winter visitor. That is not true of the eastern part of the Upper Peninsula of Michigan. Thirteen consecutive winters at my station disproves the irregularity, and the fact that for the past seven years we have checked them all through the summer makes the Evening Grosbeak a resident and not a winter visitor.

"In summer the birds are usually found in the heavy woods from forty to one hundred and fifty miles west of the Soo. Up to last year it was impossible to say whether any of my birds were among them, but we now know at least one was.

Early in July, 1926, one, banded at my station March 15, 1925, was killed by striking a telegraph-wire at McMillan, picked up, and the band secured by a man working on the road. This man later, hearing about banding, turned the band over to his foreman, and a report was sent in to the Biological Survey last September."

Not all the birds in the same flocks when banded wandered east as the following will show:

110630 Adult female. Banded March 23, 1924. Killed, St. Charles, Canada, March 9, 1926.
110633 Adult male. Banded March 27, 1924. Returned, Soo, Dec. 8, 1925.
110644 Adult male. Banded April 7, 1924. Returned, Soo, March 18, 1928.
269827 Adult female. Banded March 8, 1925. Returned, Soo, March 4, 1927.
338520 Adult male. Banded March 14, 1925. Trapped at West Hartford, Conn., Jan. 30, 1928.
68450 Adult male. Banded March 15, 1925. Killed, McMillan, Michigan, early in July, 1926.
345016 Adult female. Banded April 9, 1925. Returned, Soo, Nov. 7, 1927, and repeated Feb. 23, 1928.
393454 Adult male. Banded Feb. 27, 1927. Found Loretteville, Quebec, Feb. 10, 1928.
462146 Adult male. Banded March 6, 1927. Returned, Soo, Feb. 29, 1928.
462165 Adult female. Banded March 9, 1927. Returned, Soo, March 12, 1928.
462170 Adult female. Banded March 10, 1927 (7.45 A.M.). Trapped Huntington, Mass., Feb. 22, 1928.
462171 Adult female. Banded March 10, 1927 (8.30 A.M.). Returned Soo, Feb. 17, 1928.

The following history of the Evening Grosbeak may be of interest: The first specimen of the Evening Grosbeak known to science, the type from which the species was described, was taken near the Soo, April 7, 1823, by Henry R. Schoolcraft (See Professor Walter B. Barrow's Book, "Michigan Bird Life," p. 464) and described by W. Cooper, in January, 1825, under the name *Fringilla vespertina* (See *Annals Lyceum Natural History of New York*, Pt. 2, 1825, pp. 219–222.)[1] One hundred and two years later, 1925, its true relationship to other birds was worked out by the celebrated Russian ornithologist, Professor Peter P. Sushkin, through the medium of a pair of these birds which were trapped at my feeding

[1]Cooper on p. 221 states that Schoolcraft sent him the Evening Grosbeak in question which he had labelled "*Paushkundamo*", a name given the bird by the Chippewa Indians meaning, as translated by Schoolcraft, "fly-breaker or berry-breaker." The fact that the Grosbeaks were seen at this time only during twilight gave rise to the specific name *vespertina*.—EDITORS.

station here and forwarded to him at the Museum of Comparative Zoölogy, Cambridge, Massachusetts, where he was conducting his investigations. Professor Sushkin regards the various races of *Hesperiphona v. vespertina* as belonging to the Hawfinch group with its nearest relatives occurring in the Himalo-Tibetan Zoögeographic Province. Professor Sushkins findings were published in *The Auk*, Vol. XLII, 1925, pp. 256–261.

Sault Ste. Marie, Michigan,
March 18, 1928

EDWARD HOWE FORBUSH

BY JOHN B. MAY, M.D.

THE achievement of three score years and ten is a notable event in the life of any man and the seventieth milestone cannot be passed without some recognition.

Edward Howe Forbush, the first president of the New England (later the Northeastern) Bird Banding Association, was born in Quincy, Massachusetts, on April 24, 1858, the son of Leander Pomeroy Forbush and Ruth Hudson (Carr) Forbush. He comes of sturdy New England ancestry, the first Forbush or Forbes having settled in Cambridge before 1660.

While still at a tender age, his appetite for exploration and adventure became evident, and he had already attempted an exploration of unknown waters, his craft a discarded packing box and his paddle a broken board, before he was seven years old, at which time his family removed from Quincy to West Roxbury.

In 1865 West Roxbury was still a farming region, with considerable areas of woodlands still persisting, and here the boy's outdoor tastes and his love for wild life developed apace. Aside from school hours, a great deal of his time was given up to exploring the woods and fields with their myriads of interesting inhabitants. He became an omivorous reader of outdoor books, and began to shape his life work at that time. He studied drawing and modeling, and at the age of fourteen taught himself taxidermy. About this time his family moved again, to Worcester, where he became a member of the Worcester Natural History Society, and his studies and field trips began to show results in the form of printed articles on birds.

EDWARD HOWE FORBUSH

When he was nineteen years old he spent several months with a friend, exploring and collecting in Florida, at that time a veritable paradise for the naturalist. This was the first of many scientific journeys to be made, in the course of which he visited practically every state east of the Mississippi, the northern states to Washington, and much of Canada. His thirtieth year found him on the Pacific Coast, living a most adventurous life with Indians, trappers and fishermen, while he traveled the rugged shores of Washington Territory and British Columbia in search of natural history specimens. It was during this trip, in September, 1888, that he obtained the first specimens of a new race of the Lincoln Sparrow, which was later described and named for him, by his friend, William Brewster.

In 1893, Mr. Forbush was appointed Ornithologist to the Massachusetts State Board of Agriculture, in recognition of his work in economic ornithology. His researches on the value of birds to agriculture, horticulture and forestry, led to increased appreciation, and in 1908 the official title of State Ornithologist was conferred upon him by the Board. In 1921, he became the first Director of the Division of Ornithology, following the reorganization of the various state boards and commissions, and it is from this position that he retires this month, having reached the age at which retirement is compulsory under the Acts of the Massachusetts Legislature.

For thirty five years, then, Mr. Forbush has been the official ornithologist of Massachusetts, under one title or another. He is a member of many scientific and conservation societies. He became an associate member of the American Ornithologists Union in 1887, and was later elected a Member, then a Fellow, of that organization. He is a Life Member and former President of the Worcester Natural History Association; a Founder, and for twelve years President of the Massachusetts Audubon Society; he was for many years a corresponding member of the Nuttall Ornithological Club, and he is field agent for New Engiand of the National Association of Audubon Societies.

Always farseeing and progressive, Mr. Forbush was quick to see the many possiblilties for the advancement of ornithology through bird banding. When the New England Bird Banding Association was formed, he was selected as the logical choice for its first president, and his interest did much to determine its place among ornithological organizations. As soon as the Association was firmly established, however, with characteristic modesty, he refused re-election. He has maintained his

interest, however, and his office at the State House has served as a clearing house for bird banding information. His monthly bulletin, "Items of Interest," published by the State Department of Agriculture, contains notes of value to bird banders in every issue, and he has also contributed to the pages of the *Bulletin* of the Northeastern Bird Banding Association, articles of much timely import.

It is therefore most fitting that the Association, through its Officers and Council, should extend to Edward Howe Forbush, its heartiest congratulations and good wishes on the occasion of his approaching anniversary.

TREE SPARROWS RETURNING RATIOS

BY CHARLES L. WHITTLE

In past numbers of the *Bulletin* I have published so much of the history of a year's captures of Purple Finches and Catbirds as is revealed by returns for a succession of years. The matter is discussed under the headings "Returning Ratios" and "Survival Ratios." See the *Bulletins*, Vol. II, No. 2, p. 49, and Vol. III, No. 3, pp. 58 and 59. These ratios had to do with species returning to their nesting-grounds.

During the present winter season (1927–28) I have secured similar ratios of some interest of a species, the Tree Sparrow (*Spizella m. monticola*), returning to its wintering-grounds, and while the history is perhaps not completed for the present season (1927–28), it seems best to place the facts on record. This record is given in a condensed form in the following table:

Band No.	*Date of Banding*	*Returns in winter season* 1926–27	*Returns in winter season* 1927–28	
A18285	Jan. 30, 1926	Jan. 12, 1927		
A26625	Feb. 4, 1926	Dec. 7, 1926	Jan. 29, 1928	Return–2
A26725	Feb. 5, 1926	Jan. 16, 1927	Jan. 29, 1928	Return–2
A26730	Feb. 8, 1926		Jan. 29, 1928	Return–1
A26734	Feb. 6, 1926	Dec. 8, 1926	Mar. 11, 1928	Return–2
A26739	Feb. 7, 1926	Jan. 16, 1927		
A26784	Mar. 7, 1926	Jan. 16, 1927	Feb. 18, 1928	Return–2

The six returns-1 recorded in the winter season of 1926–27 represent fifty per cent of the twelve Tree Sparrows banded the previous season. It should be stated, however, that thir-

teen birds were originally banded, though one did not survive to go north with its associates. Of the six returns-1 in 1926–27, four were again recorded as returns-2 in 1927–28, or 33.33 per cent of the original number, and 66.66 per cent of the returns-1 recorded the previous season. One return-1 was recorded in 1927–28 not recorded in 1926–27, so that at least 41.66 per cent of the original twelve survived until the present season.

These returns bring out the fact that this species strongly tends to return each winter season to its wintering-place of the year before. The ratios, of course, do not necessarily mean that all of the original twelve Tree Sparrows that were alive and could have come necessarily did so, but this sort of statistical data collected from many stations year after year will in time give much more dependable ratios than are available at present.

Bird-banding is rapidly accumulating data showing that nesting birds do indeed return to their old breeding-places to nest, thus supporting the view long held by many, but it was not expected that banding would show that birds also return to their old wintering-places year after year and there spend the winter in a very restricted area. Each year's banding records, however, add to the list of species possessing this habit.

Reference has already been made (see the *Bulletin*, Vol. III, 1927, p. 13) to the possibility that a failure to record Tree Sparrows in winter-time at a station during the succeeding wintering-seasons may not mean that the birds are not passing the winter close to the station, as will appear from the following experiences: The present winter season at Cohasset up to February 16, 1928, has been unusually warm and free from from snow, no snow falling until January 29th. Had the conditions obtaining up to that date continued throughout the winter, it is doubtful if I should have had any returning Tree Sparrows. Up to January 29th, only one banded Tree Sparrow had been seen at my station, and only on one or two occasions, but early on the snowy morning of the 29th six Tree Sparrows appeared, among which were three sight returns, a fourth one being identified a few days afterwards. On the 15th and 16th of February the weather was again warm and the ground was once more free from snow, with the result that no Tree Sparrows whatever came to the station during these days. From these observations it appears fairly certain that the returns were wintering close by, that they were finding an ample natural food-supply available, and that all the winter season previous to January 29th the birds had knowledge of the existence of the food-supply at my banding

station, which was immediately visited when the thick mantle of snow made their natural food-supply inadequate.

Cohasset, Massachusetts
March 11, 1928

REPORT OF THE RECORDING SECRETARY OF THE NORTHEASTERN BIRD-BANDING ASSOCIATION

ALICE B. HARRINGTON

THE record of birds banded during the year 1927 is as follows:

Number of birds banded	13,128
Returns taken	523

Species having largest number of returns:

Purple Finch	139
Chipping Sparrow	68
Tree Sparrow	58
Song Sparrow	49

Names of members who have banded the largest number of birds and those having had the largest number of returns during 1927:

Name	*Stations*	*No. Banded*	*Returns*	*Recoveries*
Charles B. Floyd	Chatham and Auburndale Mass.	4791		4
William P. Wharton	Groton, Mass., and Summerville, South Carolina	950	39	
Charles L. Whittle	Cohasset, Mass.	556	87[1]	
Rev. George A. Allen	Whitinsville, Mass.	482		
Mrs. Helen G. Whittle	Peterboro, New Hampshire	475	102[1]	
Harry E. Woods	Chester, Mass.	457		5
Rev. Eugene Goellner	Manchester, New Hampshire	391	20	
Allan Keniston	Vineyard Haven, Mass.	353	21	
George D. Eustis	Chilmark, Mass.	314	18	
Mrs. H. C. Dunham	Wellesley, Mass.	311	28	
Mrs. Richard B. Harding	Cohasset, Mass., and Holderness, New Hampshire	258	57	
Miss Cora M. Teot	New Haven, Connecticut	230	24	
E. C. Weeks	Sanbornton, New Hampshire	230	22	

[1]Mr. and Mrs. Whittle's "returns" comprise only those birds which between takings made their seasonable migrations to their wintering or nesting grounds and came back to their place of banding.—EDITOR.

ON THE MEANING OF THE WINTER-TIME YELLOW PATCHES ON ADULT MALE AMERICAN GOLDFINCHES

BY CHARLES L. WHITTLE

In this *Bulletin* for July 1925, (Vol. I, No. 3), pp. 45 to 48, Mrs. Whittle and the writer published a "progress report" entitled "Notes on Plumage Changes of Male American Goldfinches" (*Astragalinus t. tristis*). This paper dealt with the occurrence of summer yellow areas variously located on many birds and noted well developed as early in the winter season as February 2 (p. 46), but unfortunately no feathers of the seemingly abnormal yellow patches were collected for microscopic study. These patches at that time were regarded as probably "hold-over" areas of the previous summer plumage, rather than as the first stages of the prenuptial molt.

Commenting on the article, Dr. Stone (see *The Auk*, Vol. XLII, p. 607) writes: "We have given much attention to the mold of this species and would regard the yellow patches on adult winter birds not as remains of the previous nuptial plumage, but as part of the winter plumage, some of the feathers of which have come in yellow ahead of time. We have seen such feathers in several species appearing one molt too soon if we may so express it." This comment appears to be equivalent to saying that such yellow blotches are due to molting directly from summer plumage to summer plumage.

From the winter of 1924–25, when the observations were made forming the basis of the paper referred to, until February 25, 1928, I have searched in vain for additional examples of Goldfinches in winter-time having such yellow patches. On the later date, however, I banded an old male Goldfinch having two summer yellow patches on his ventral tract, about one fourth inch across and one half inch apart. From these patches feathers were collected for study, and from other old males feathers were collected from the same tract, but of normal winter-plumage color. A comparison of the condition of such feathers with those from the yellow patch yielded results of great and unexpected interest. The yellow feathers collected February 25th were nearly full-grown and of perfect outline; no evidence of abrasion whatever was discernible, and the evident newness of the feathers was further indicated by the fact that a portion of the sheath still adhered to the calamus. On the view that such feathers required two to three weeks to grow, their growth began about the 10th of

February. That these feathers were younger is inferred by an examination of feathers of normal winter plumage from several old males collected on February 28, 1928, from the ventral feather tract, as already stated, all such feathers showing unmistakable and pronounced abrasion.

From the above observations it appears fairly certain that summer yellow patches occurring on male Goldfinches in winter, excluding of course the yellow rump, and yellow lesser and tips of the median coverts of old males, represent the first stages in the change from the winter plumage to that of the summer dress. This prenuptial molt begins in individual males as early as the middle of January in certain examples noted, and it is characteristic of this species' molting in general to have the new yellow appear as blotches at whatever time, from January to March, molting first manifests itself. Such early-appearing yellow patches, however, are often stagnant, that is, do not increase in area for weeks.

GENERAL NOTES

Migrating Blue Jays.—Dr. Eugene U. Ufford has had reported to him by the Biological Survey the first recovery of a migrating Blue Jay (*Cyanocitta c. cristata*) made of a bird of this species banded in New England of which we have knowledge. This bird, an adult, No. 249271, was banded by him in Auburndale, Massachusetts, September 2, 1927, and was captured at Cresskill, New Jersey, November 20, 1927.

A second migration record of this race of the Blue Jay was reported by Mr. Benjamin Shreve of a bird, No. 524765, banded by him at Cotuit, Massachusetts, August 25, 1927, which was taken at Cooleemee, North Carolina, on the Piedmont Plateau, about 450 miles away, by Theodore Hilliard, December 16, 1927.

These two recoveries are of great interest as they are the sort of things that will in time tell us whether there is orderliness or lack of it in the distribution of this race throughout its wintering-range, that is, whether the most northern birds occupy the northern portion of the wintering-area and the more southern nesting birds occupy the southern part of the wintering-area, or if the migrants are scattered at random within this area.

It has not been shown that Massachusetts-nesting Blue Jays, for example, migrate as a whole to more southern regions to pass the winter, though the above recoveries show that some individuals do so, nor have we evidence that the places of such migrating birds are taken by Blue Jays nesting to the north of Massachusetts. It is very probable, however, that a line exists within the nesting range of the northern race south of which no regular migration takes place, though an irregular ranging about of the Blue Jay in winter-time is to be expected.

In addition to the above recoveries, the Technical Bulletin, No. 32, for December, 1927, just issued by the Bureau of Biological Survey, records three other Blue Jay recoveries of birds banded in the middle west. These are tabulated below:

No.	*Banded by*	*Date*	*Location of Banding Station*	*Recovery Date*	*Place of Recovery*	*Remarks*
314325	Burr B. Butler	May 6, 1925	Whitten, Iowa	Jan. 22, 1926	Decatur, Ark.	Recovered 400 miles approximately south of Whitten.
111511	Frank Bischof	July 8, 1924	Rockport, Mo.	June 13, 1926	Sabetha, Kans.	Recovered approximately 50 miles south of Rockport.
287513	Roland Williams	June 16, 1925	Winnetka, Ill.	Dec. 10, 1925	Sulphur Rock, Ark.	Recovered about 400 miles a little west of south of place of banding.

Of these five migration records, the three western show a movement almost due south, whereas from New England the movement was southwesterly, as would be expected on account of the trend of the Atlantic coast-line. Blue Jay, No. 111511 appears to have nested well south of its summer residence of two years before.—C. L. W.

A Junco Return-3 and an Indigo Bunting Return-2.—Mrs. Herbert Salmond, who operates a banding station at Westfield, Massachusetts, reports the capture of a male Junco (*Junco h. hyemalis*) for the third successive winter season—a return-3. This bird, No. 166654, was banded October 31, 1925. The returning dates are April 23, 1926, November 18,

1926, and January 2, 1928. The bird, therefore, was at least three and one half years old on January 2, 1928.

Mrs. Salmond also reports a Return-2 Indigo Bunting (*Passerina cyanea*), No. 157491, a bird returning to its nesting-grounds. The bird, a male, was banded May 18, 1925, returning May 20, 1926, and May 15, 1927—a remarkably close accordance of dates. This is the second recorded return of this species to its nesting-ground within our territory, the first being a female reported by Professor Frederick A. Saunders at Kennebunk, Maine, see Vol. I, No. 3, p. 52 of our *Bulletin*.

Evidence of Migrating Groups of Tree Sparrows.—Last season between February 28, 1927, and March 23, 1927, I banded no new Tree Sparrows, but from March 23, to April 15, I banded thirty-two new ones, not one repeating during this period, and none has returned so far this year.

On November 10, 1927, I banded my first fall Tree Sparrow and up to the 21st of November, I banded twenty-one. Not one of these has repeated, though from the 21st on the repeats have been numerous. From these records I conclude that in the spring of 1927 I banded a group moving northward in migration, and that in the fall I banded a group moving southward in migration.—Mrs. Annie S. Wilder, Westfield, Massachusetts, March, 1928.

Nesting-Habits of Barn Owls.—Mrs. Mabel Gillespie in the March, 1928, *Nature Magazine* has an article entitled "Ghosts of a Water Tower," describing the feeding-habits of Barn Owls (*Aluco pratincola*) which raised a family in an old windmill. The locality is National Park, New Jersey, south of Camden on the Delaware River. For several seasons broods of young, ranging in number from five to seven were raised there, and all the young birds were banded, also one adult female. The adults in one instance remained in the tower all winter during the daytime. The young, however, in three recorded instances departed from the parental roof in the fall and were shot, thus furnishing records of the closing events in their life-histories. These three recoveries were as follows: No. 233485, banded June 12, 1925, was recovered August 20, 1925, at Somers Point, New Jersey, fifty miles southeast of the old windmill. A second one, No. 233482, banded May 20, 1925, of the same brood, was killed on November 16, 1925, six months after leaving the nest, at Wilmington, North Carolina, four hundred miles southerly of its birthplace. The third bird, No. 332441, banded November 14, 1925, was shot at Trappe, Maryland, on the eastern shore of Chespeake Bay, on April 5, 1926, four months after leaving the nest. These three records show an easterly or southerly dispersal, and always to the seacoast.

The following additional details of the banding of the Barn Owls have been sent us by Mrs. Gillespie: From 1924 to 1926, twenty-six Barn Owls were banded in the tower, all young birds but one, No. 204477, a female banded May 5, 1924. This bird repeated on November 15, 1924, and again on May 20, 1925, showing that it passed the winter at National Park. The remainder represented four broods, two of seven young each, one brood of six, and one brood of five individuals.

Mrs. Gillespie also writes us of the fall nesting of Barn Owls in the old tower, and of a second instance of this kind, the young leaving the nest, which was built in a tree, about November 20, 1927, and even as late as March 8, 1928, two of the brood were being fed by their parents.—The Editors.

Ages of Two Tree Sparrows (*Spizella m. monticola*).—Of all my returns from banded birds, Tree Sparrow No. 64700, holds our Sanctuary record for longevity and for the number of times it has been recaptured during successive years. An analysis of the records indicates that this Tree Sparrow will probably celebrate its sixth birthday next summer. Its first capture occurred on March 30th, 1923. Assuming that the bird was born at the latest in the summer of 1922, the winter of 1922-23 was its first winter in the United States. No records of this bird were secured during the winters of 1923-24 or 1924-25, as banding-operations were suspended during these two seasons. Its return during the three following seasons to the Sanctuary, however, leads us to believe with some degree of probability that it also returned, though unrecorded, during the two previous winters. Its first return in the winter of 1925-26 was on January 1, 1926. During the winter of 1926-27 it was retaken for the second time on December 6, 1926. The present winter season it was captured as a return-3 on January 20, 1928. No. 64700 is, of course, a winter resident. This winter it repeated in February and in March. Other years it repeated in December, January, February, March, and April.

Another of my Tree Sparrows, No. 64714, has a history similar to that of No. 64700. No. 64714 is my second return out of seventeen Tree Sparrows banded during the winter of 1922-23. It was first captured on March 9, 1923, and returned the first time on February 9, 1926. On December 20, 1926, it returned to spend another winter here. This year we have been looking for it in vain. When the bird returned last winter, it was probably its fifth winter at the Sanctuary, at which time it was approaching at least its fifth birthday.

One of these birds, No. 64714, was at least four and a half years old on December 26, 1926, and the other, No. 64700, was at least five and a half years old on January 20, 1928.—Rev. Eugene Goellner, O. S. B., St. Anselm's College, Manchester, New Hampshire.

A Lapwing Recovery in Newfoundland.—As Newfoundland is included in the territory of this Association, it is appropriate to report the recovery last December of a Lapwing (*Vanellus vanellus*) on the island. This bird, No. X5046, was "ringed" by Dr. H. J. Moon at Ullswater, Cumberland County, England, in May, 1926, as a nestling. Its recovery in Newfoundland was in December, 1927, the exact date not being available, one of a large number of this species numbering thousands appearing there during that month. The birds were met with on the east coast, in the central portion, and on the west coast.

The above information is taken from a reprint of an article by H. F. Witherby published in *British Birds*, Vol. XXI, No. 9, pp. 215 and 216, February 1, 1928. This article is entitled the "*British Birds Marking Scheme* (*Progress for* 1927)." According to recent information received by letter from F. A. Bruton of England, the Lapwings were first reported in Newfoundland last December, on the twentieth. Another article, appearing in the Manchester (England) *Guardian* of January 24, 1928, by T. A. Coward, an English ornithologist, advances the view that the Lapwings were driven across the Atlantic by gales during last December. This explanation seems rather unsatisfactory to me because a gale sufficiently powerful to force the birds out of their accustomed path would seemingly at the same time result in a widespread scattering of the birds along the Atlantic coast of North America, rather than to carry them across as a flock. The distance involved is so great that winds of gale velocity are unlikely to blow en-

tirely across from Europe to North America. The monthly Pilot Charts issued by the United States Weather Bureau show that the prevalent winds of the North Atlantic are westerly. That the general movement of cyclones is from the United States easterly across the Atlantic is well known. These facts reveal why it is that North American birds are more frequently found in Europe than are European birds in this country.

As to the cause of the movement of Lapwings to Newfoundland and the route taken, it is perhaps helpful to study the Pilot Charts of the North Atlantic above referred to. During the month of December, the 16th and 17th, a well-developed cyclone of exceptional intensity had its center well to the east of Spain, with a low pressure of 28.30 inches, and with accompanying strong southeasterly winds from western Europe. These winds might easily have been instrumental in driving Lapwings to Iceland, five to seven hundred miles distant, and to Greenland. Later, polar winds and a search for food may have played important parts in forcing a movement southwesterly to northern Labrador, and then southeasterly, following the coast to Newfoundland. Here, near the shore, snowless tundras, which probably would furnish a food-supply, may have existed, even in December, with the result that the recently scattered birds became gradually concentrated.

Regarding this confessedly speculative theory, it is interesting to note that a radio message from Donald B. MacMillan, who is wintering near Nain, Labrador, which has recently been received by E. H. Forbush, states that on December 22, 1927, two Lapwings were captured at Anatalok Bay in northern Labrador, some six hundred miles from St. Johns, Newfoundland, and others were seen at various places. MacMillan also stated that a bad northeasterly storm prevailed from December 18th to the 23rd. He believes that the Lapwings came from Greenland.

A letter to Mr. Forbush from Allen L. Moses states that a Lapwing was also shot on the island of Grand Manan, New Brunswick, on January 6, 1928.—C. L. Whittle.

A Six-Year-Old Purple Martin.—A Purple Martin was banded as a fledgling with American Bird Banding Association Band No. 55422, at Melbourne, Florida, on May 27, 1922, by Mr. William I. Lyon. It was found at Eau Gallie, Florida, on February 27, 1928, by Mr. E. Morgan, Secretary of the local Chamber of Commerce. The bird had a broken wing and died a day or two after it was found.—Frederick C. Lincoln.

A Purple Finch Recovery of Interest.—Mrs. Jean E. Carth sends word that a Purple Finch banded by her in Wellesley, Massachusetts, in March, 1923, was found dead (?) in April, 1924, at Rockingham, North Carolina. Considering the large number of this species banded, it is remarkable how few are ever recovered far from their place of banding, either north or south of New England.

An Ipswich, Massachusetts, Black-crowned Night Heron Recovery.—Willard B. Porter of Salem, Massachusetts, reports that Black-crowned Night Heron No. 312353, a nestling, banded by him at Ipswich on June 22, 1924, was caught by D. Ratcliffe at Gasparville, Florida, January 29, 1928. When recovered, this bird was three and a half years old.

Another Song Sparrow Recovery in the South.—Mr. E. C. Weeks sends word that a Song Sparrow, No. 73812, banded by him on October 10, 1926, at Sanbornville, N. H. was killed December 24, 1927, by K. Tyler at Gallivant's Ferry, South Carolina. Commenting on this fact, Mr. Weeks writes: "I put on my first band February 16, 1923, and since that time have banded 1,007 birds up to the first of this month (February, 1928). This bird from the South has been the first and only one of my birds heard from outside of my own neighborhood more than one half-mile from house. Neither have I ever caught any banded birds except my own."

A Recovery-5 Purple Finch.—On January 26, 1924, Mrs. Alice B. Pratt banded at Middleborough, Massachusetts, an adult Purple Finch, No. 40160. This bird was recovered by me on April 15, 1924, and since that date it has been recovered each season at this station, Cohasset, Massachusetts, the dates being January 4, 1925; February 8, 1926; March 12, 1927; and March 12, 1928. This bird is not less than five years and nine months old. The bird came to the station with two other rosy males, both much less brilliantly colored, another example of the increasing intensity of color, appearing to involve all the rosy feathers, accompanying advancing years. It appears to be difficult, indeed, to determine at what age the Purple Finch attains mature plumage.—C. L. W.

Another Faraway Common Tern Recovery.—Members will be interested to know that the Biological Survey has received word from the American Consul at Para, Brazil, that Common Tern 402316, banded by me at Penikese Island, Massachusetts, on July 10, 1927, was recovered at Soure, Ilha de Marajo (Marajo Island), Brazil, on February 1, 1928, Marajo Island lies between the estuaries of the Amazon and Para Rivers. This island is situated just south of the equator, approximately 3,320 miles. about S. 30° E. from Penikese Island, and the distance from the place of banding is exceeded in this species only by that of the Common Tern banded by Dr. Phillips in Maine, which was recovered at the mouth of the Niger River in Africa.

The personnel of the banding-expedition to Penikese Island resulting in the banding of this Tern and others was Edward H. Forbush, A. C. Bent, Charles L. Whittle, and myself.—L. B. Fletcher.

Notes on a Screech Owl.—Our cover illustration for this issue is a return Screech Owl, No. 208939, photographed at Cohasset, Massachusetts by the writer. The bird was first taken on April 14, 1923, in a flicker box fastened to the trunk of a red maple about fifteen feet from the ground, at my home in Cohasset. In the box with the Screech Owl were two Meadow Mouse bodies, the heads of which had been eaten.

On November 28, 1925, thirty-one months later, the owl was again found in the same flicker box, and with it the decapitated carcass of another Meadow Mouse. The bird had not been recorded in the interval between these two dates. I have captured and banded about a dozen Screech Owls on my place, and in only one other case has one repeated. An owl found in a box on an apple tree fifty feet away was found in the maple tree box two days later. Besides numerous pellets in my three owl-size boxes, the boxes have revealed a number of uneaten articles of diet. The only

birds found were English Sparrows and Starlings, both hole-haunting species, and both objectionable from the bird-lover's standpoint. One entire Star-nosed Mole was found, several White-footed Mice, Meadow Mice and House Mice, two partly grown Brown Rats, several Leopard Frogs, a Wood Frog and a Green Frog, at different times. The boxes are not visited regularly, months sometimes passing without an examination, so that their possibilities have not been fully tested.—JOHN B. MAY, M. D., Cohasset, Massachusetts, March 28, 1928.

Bronzed Grackle Recovery.—Dr. Edward Gould Rowland sends word that one of his Bronzed Grackles (*Quiscalus q. aeneus*) No. 337800, banded at Norwich, Connecticut, June 6, 1926, was killed in Tyner, North Carolina, on December 23, 1927. Tyner is seventy-five miles south of Portsmouth, Virginia.

A Change of Address.—Members of this Association and others desiring to correspond with the Editor or to submit manuscripts for publication in the *Bulletin* are asked to note carefully that his address after April, 1928, will be River Crossroads, Peterboro, New Hampshire.

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